DSH-146 Series

46” IP3X Full HD Digital Signage with Intel Core 2 Duo Processor

User’s Manual

Disclaimers

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Safety Approvals

- CE Marking
- FCC Class A

FCC Compliance

This equipment has been tested in compliance with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are meant to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

1. Increase the separation between the equipment and receiver.
2. Connect the equipment to another outlet of a circuit that doesn't connect with the receiver.
3. Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with the emission limits.

Safety Precautions

Before getting started, please read the following important safety precautions.

1. The **DSH-146 series** does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the **DSH-146 series** before any installation. Be sure both the system and external devices are turned OFF. A sudden surge of power could ruin sensitive components that the **DSH-146 series** must be properly grounded.
4. Make sure it is the correct voltage of the power source before connecting the equipment to the power outlet.
5. The brightness of the flat panel display will be getting weaker as a result of frequent usage. However, the operating period varies depending on the application environment.
6. The flat panel display is not susceptible to shock or vibration. When assembling the **DSH-146 series**, make sure it is securely installed.
7. Do not leave this equipment in an uncontrolled environment where the storage temperature is below 0℃ or above 40℃. It may damage the equipment.
8. External equipment intended for connection to signal input/out or other connectors shall comply with relevant UL/IEC standard.
9. Do not open the back cover of the system. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
   - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
   - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

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CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the **DSH-146**. Chapter 1 includes the following sections:

- **General Description**
- **Specification**
- **Dimensions**
- **I/O Outlets**
- **Package List**

1.1 General Description

The DSH-146 series is a Digital Signage computer which is equipped with 46-inch 450nits high brightness and Full HD (1920x1080p) TFT-LCD. The system supports superior Intel® Core 2 Duo processor. Powered by Intel® GM/GL45 +ICH9M-E core logic chipset, this panel computer has the best processor performance. The DSH series is designed for specific outdoor applications. It has been approved front bezel IP65 and complete system IP3X. There is an extension slot of miniPCIe, which can implement WiFi into the system. Also, there is a model with touch solution, DSH-146R is built in infrared touch screen. DSH146 has high reliability and easy maintain engine box, it is more user-friendly Digital Signage computer to ensure customer's project success and suited for digital signage applications.

➢ **Full HD TFT LCD**

The DSH-146 is a Full HD Digital Signage computer. The resolution is 1920 x 1080 which is ideal to display complex graphics and high definition images, and it is suited by each kind of digital signage application.

NOTE *Due to protecting LCD, we suggest to use DSH-146 in the upright position.*

- **Spill and dust resistant**

  The DSH-146 has design front bezel by IP65 water and dust proof, also the entire system is dust protected by IP3X. Therefore the system can apply to every environment under water drip and dust damages.

- **Low power consumption**

  The DSH-146 series has specific sensor detect of backlight, environmental illumination. You can easy to save the power consumption by backlight adjustment.

- **Easy maintenance**

  The DSH-146 series has pluggable engine box design; you can change HDD, DRAM and CPU configurations more easily.

1.2 Specifications

1.2.1 Main CPU Board

- **CPU**
  - Intel® Core™ 2 Duo / C-M Penryn Processor with 667/800/1067MHz FSB support
- **System Chipset**
  - GM/GL45+ ICH9M-E
- **BIOS**
  - AMI® BIOS

- **System Memory**
  - Two 204-pin DDR3 SO-DIMM socket
  - Maximum memory up to 8GB
  - Supports DDR3 800/1066 memory

1.2.2 I/O System

- **Standard I/O**
  - One VGA
  - One DVI-D
  - Four USB ports 2.0 compliant
- **Ethernet**
  - One WG82567LM Gigabit Ethernet
  - Support for RJ-45 connector with status indicator LED.
- **Audio**
  - Realtek High Definition codec audio
  - S/PDIF-out

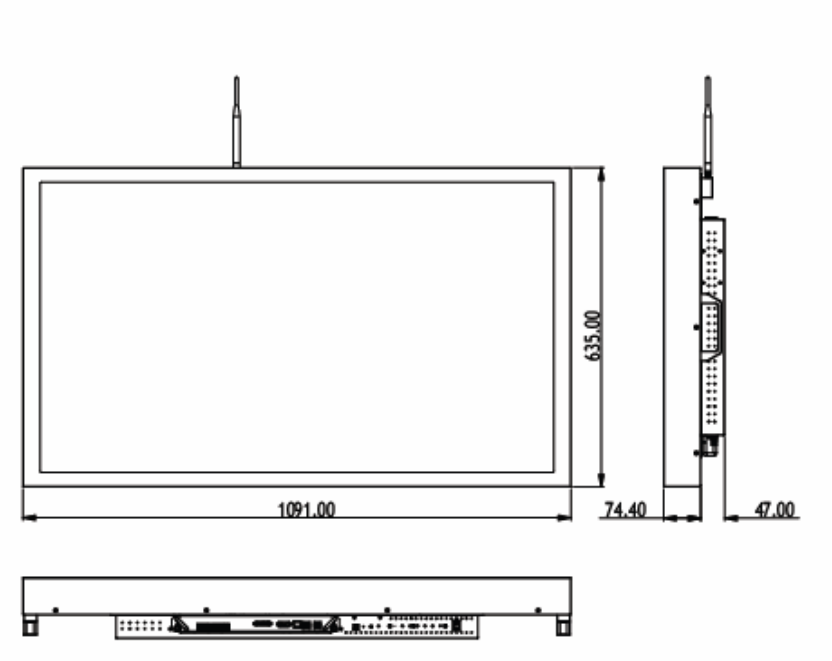
1.2.3 System Specification

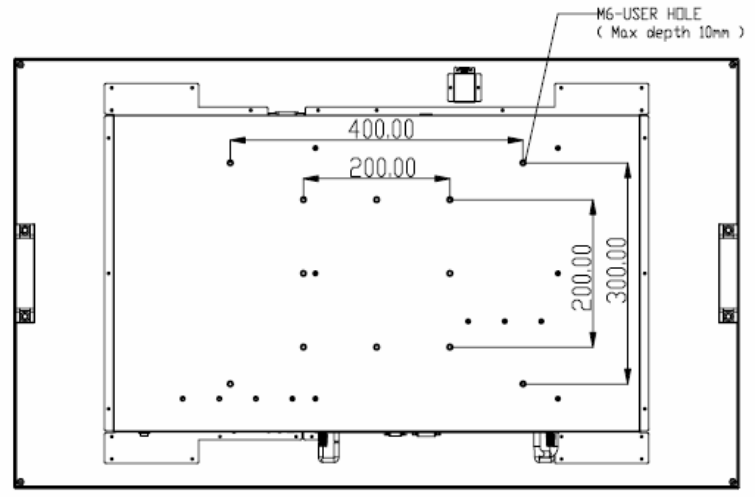
- **46" TFT LCD**
  - Brightness - 450 cd/m^2
  - Resolution - 1920 x 1080
- **Disk drive housing:**
  - One 2.5" SATA drive
- **Net Weight**
  - 43.7 Kg
- **Dimension (Main Body Size)**
  - 1091x 635 x 121 mm
- **Operation Temperature**
  - 0℃ to 40℃

NOTE *All specifications and images are subject to change without notice.*

1.3 Dimensions

This diagram shows you dimensions and outlines of the **DSH-146**.





1.4 I/O Outlets

The following figures show you the locations of the **DSH-146 Series** I/O outlets.

No.	Connector	No.	Connector
1	Power switch	**2**	Slot in holder
3	4 x USB	**4**	LAN
5	VGA	**6**	DVI

1.5 Package List

When you receive the **DSH-146**, the bundled package should contain the following items:

- DSH-146 device x 1
- Power cord x 1
- CD x 1 (For Drivers)

If you can not find the package or any items are missing, please contact AXIOMTEK distributors immediately.

CHAPTER 2
HARDWARE INSTALLATION

The **DSH-146 Series** are convenient for your various hardware configurations, such as HDD (Hard Disk Drive), Memory Module. The chapter 2 will show you how to install the hardware. It includes:

- **CPU, Hard disk Drive and DRAM Installation**
- **Mounting Method**

2.1 Slot in engine box

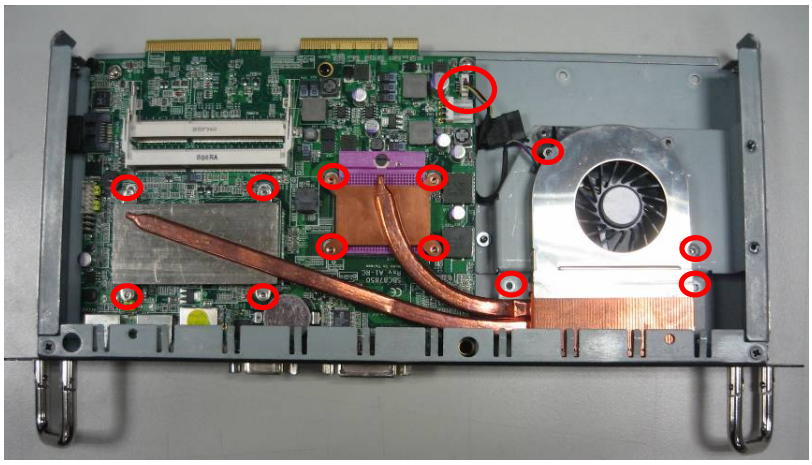
The **DSH-146 Series** offers a convenient drive bay module for users to install DRAM, CPU and HDD. Please follow the steps:

Step 1 Turn off the system, and unplug the power cord.

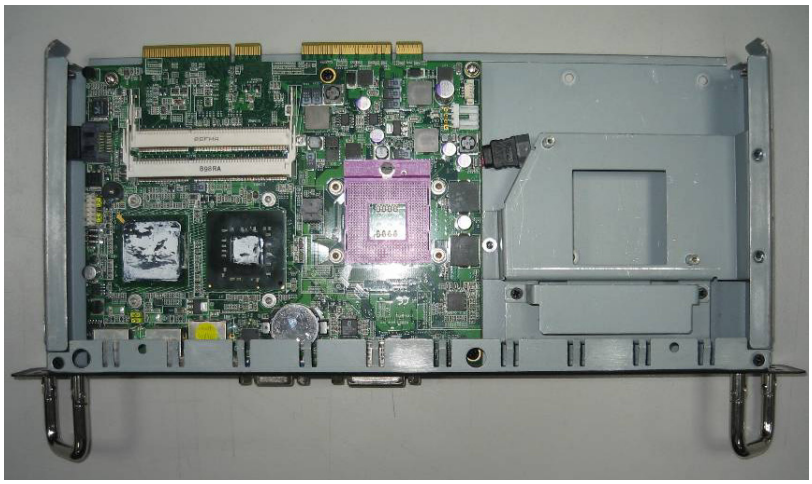
Step 2 Loosen the screws as illustrated.

Step 3 Pull out the engine box via the rings as marked.

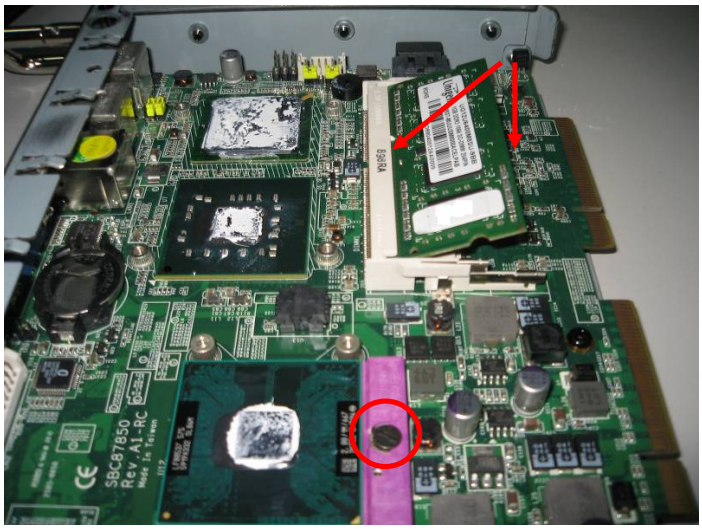
Step 4 Loosen the screws as illustration and then pull out fan connector.

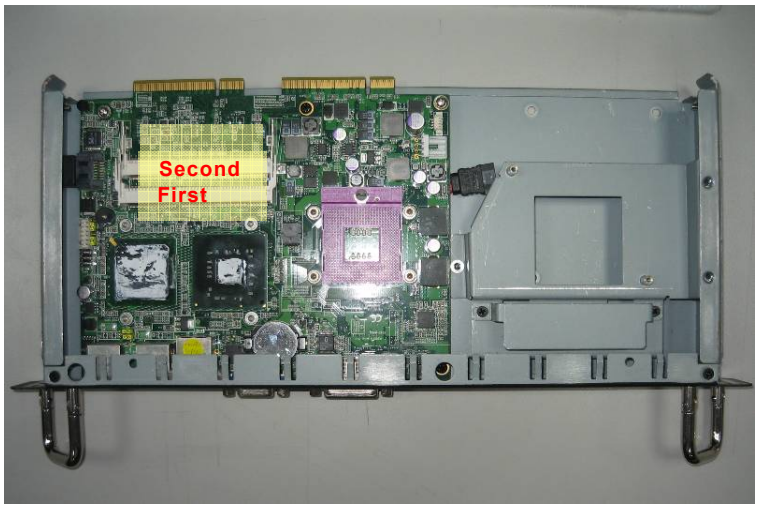


Step 5 Remove the heat-pipe and the cooler.

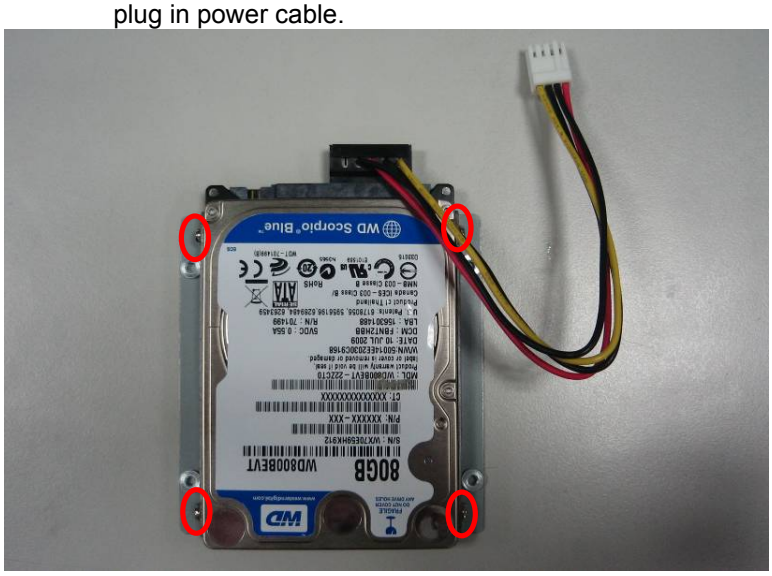


Step 6 Install CPU and DRAM module. Put CPU and turn on the latch as mark. Place the memory module into the socket and press it firmly down until it is fully located. The socket latches are levered upwards and clipped on to the edges of the DIMM. If you would only use one piece DRAM, please install first slot.

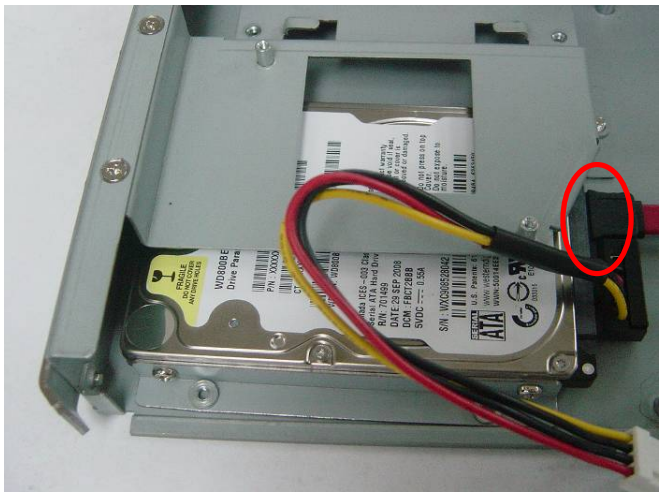




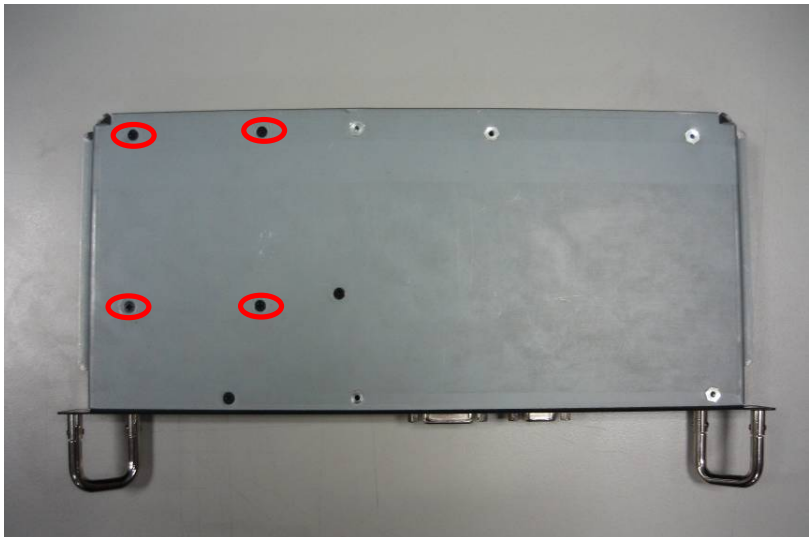
Step 7 Install the HDD Drive. Locate and fasten screws as mark and plug in power cable.



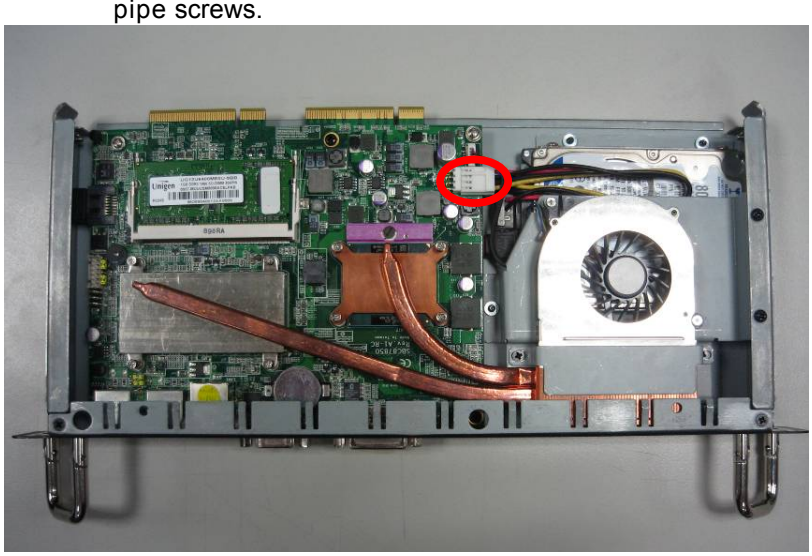
Step 8 Plug in SATA connector.



Step 9 Fasten screws to Hard Drive bracket and CPU board slot as mark.



Step 10 Plug in HDD power connector on main board. And fasten heat pipe screws.

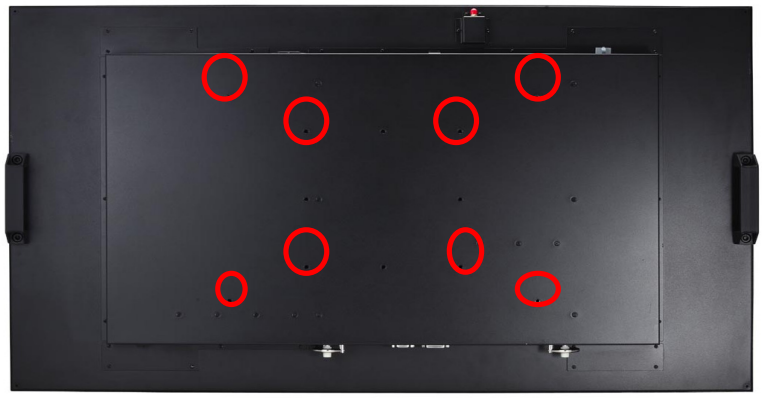


Step 11 Slot engine box into the socket.

Step 12 Fasten the screws as illustrated

2.2 VESA Mounting Method

DSH-146 supports the standard 200 and 400 VESA mount. The photo is as below.



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CHAPTER 3
AMI BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

3.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the <Del> key immediately.
2. After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

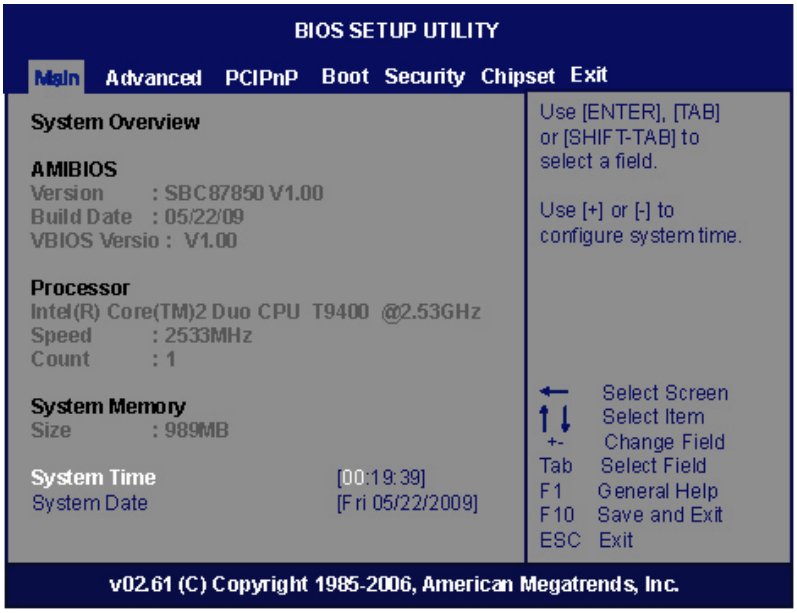
3.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.
These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.

Note *Some of navigation keys differ from one screen to another.*

3.3 Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



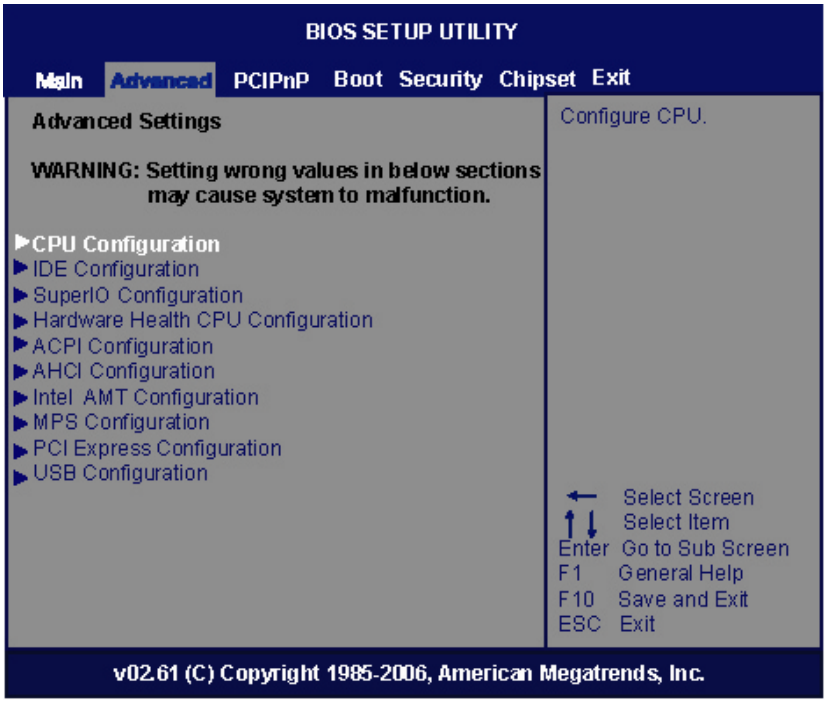
- **System Time/Date**
  Use this option to change the system time and date. Highlight *System Time* or *System Date* using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

3.4 Advanced Menu

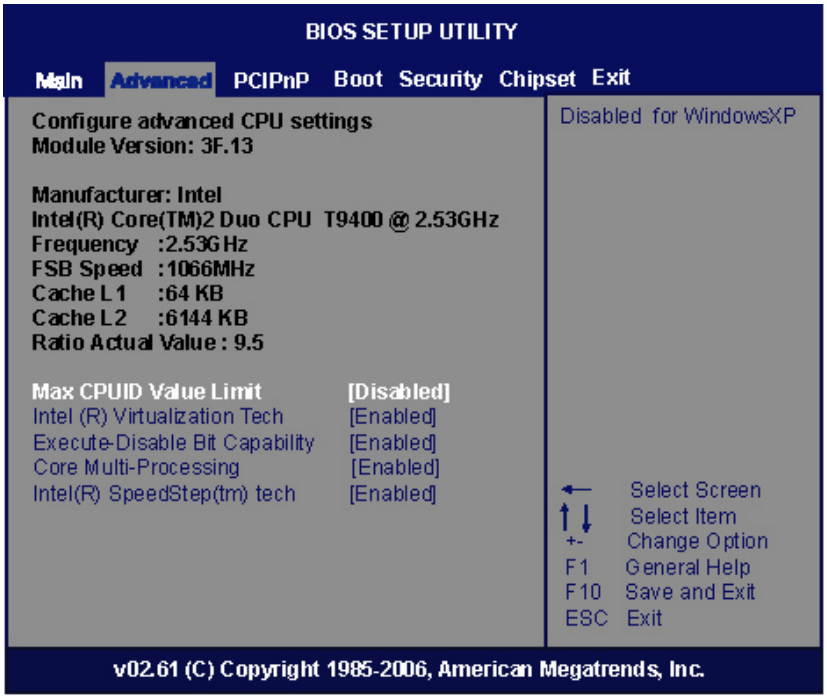
The Advanced menu allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

- CPU Configuration
- IDE Configuration
- SuperIO Configuration
- Hardware Health Configuration
- ACPI Configuration
- AHCI Configuration
- Intel AMT Configuration
- MPS Configuration
- PCI Express Configuration
- USB Configuration

For items marked with "▶", please press <Enter> for more options.



- **CPU Configuration**
  This screen shows the CPU Configuration, and you can change the value of the selected option.



Max CPUID Value Limit

You can enable this item to let legacy operating systems boot even without support for CPUs with extended CPU ID functions.

Intel (R) Virtualization Tech

This item helps you enable or disable the Intel Virtualization Technology.

Execute-Disable Bit Capability

This item helps you enable or disable the No-Execution Page Protection Technology.

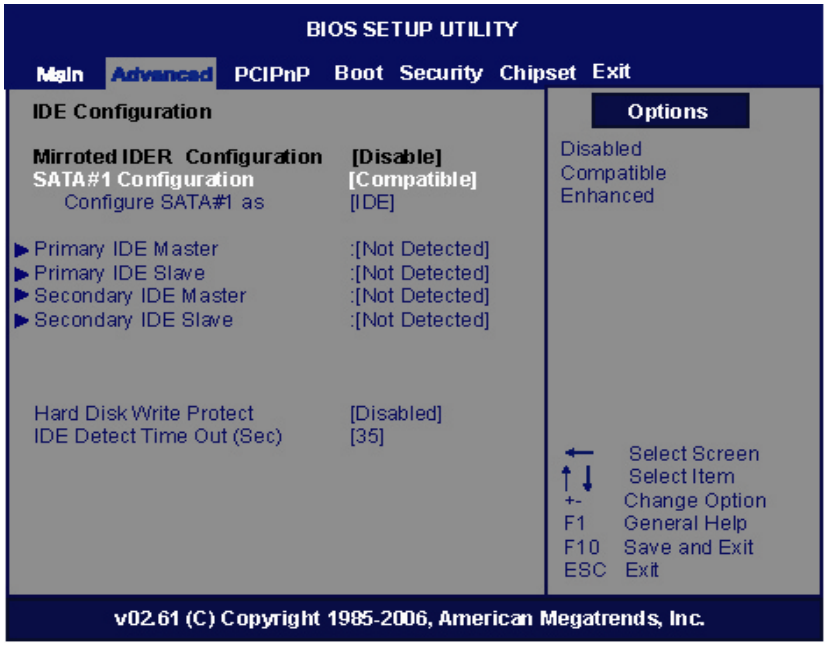
Core Multi-Processing

This item helps you enable or disable the Core Multi-Processing.

Intel (R) SpeedStep (tm) tech

This item helps you enable or disable the Intel SpeedStep Technology.

- **IDE Configuration**
  You can use this screen to select options for the IDE Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "►", please press <Enter> for more options.



Primary/Secondary/Third IDE Master/Slave

Select one of the hard disk drives to configure IDE devices installed in the system by pressing <Enter> for more options.

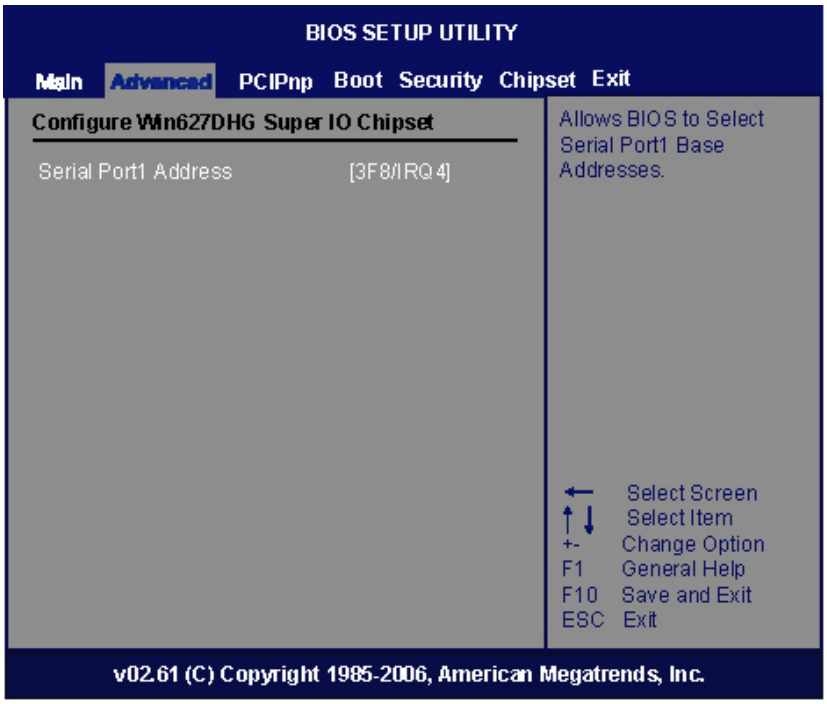
Hard Disk Write Protect

Set this option to protect the hard disk drive from being overwritten. The default setting is *Disabled*.

IDE Detect Time Out (Sec)

Set this option to stop the AMIBIOS from searching for IDE devices within the specified number of seconds. Basically, this allows you to fine-tune the settings to allow for faster boot times. Adjust this setting until a suitable timing that can detect all IDE disk drives attached is found.

- **Super IO Configuration**
  You can use this screen to select options for the SuperIO Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.


BIOS SETUP UTILITY
Main Advanced PCIPnp Boot Security Chipset Exit
Configure Win627DHG Super IO Chipset
Serial Port1 Address [3F8/IRQ4]
Allows BIOS to Select Serial Port1 Base Addresses.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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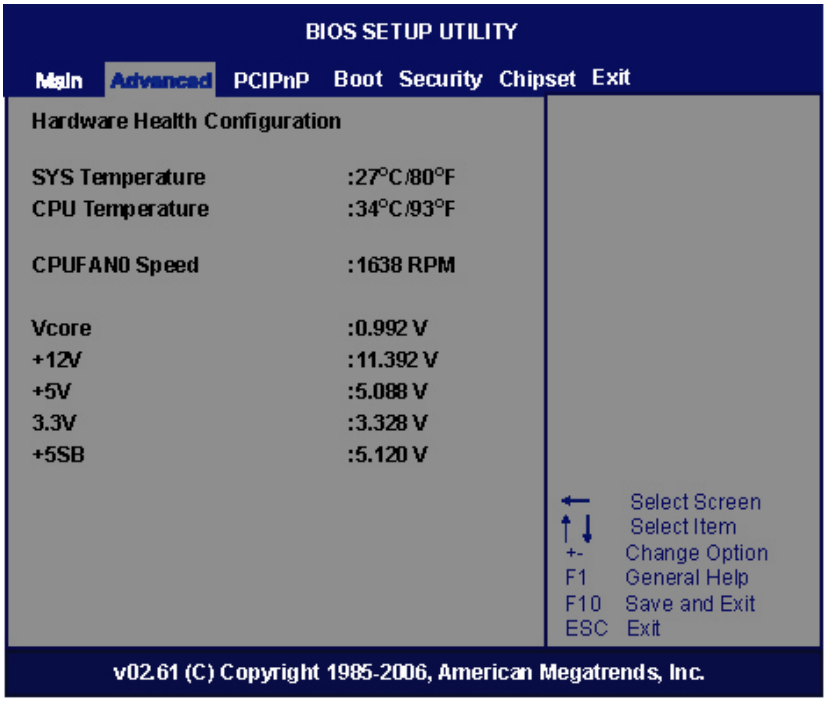
Serial Port1 Address

This option specifies the base I/O port address and Interrupt Request address of serial port 1. The Optimal setting is *3F8/IRQ4*. The Fail-Safe default setting is *Disabled*.

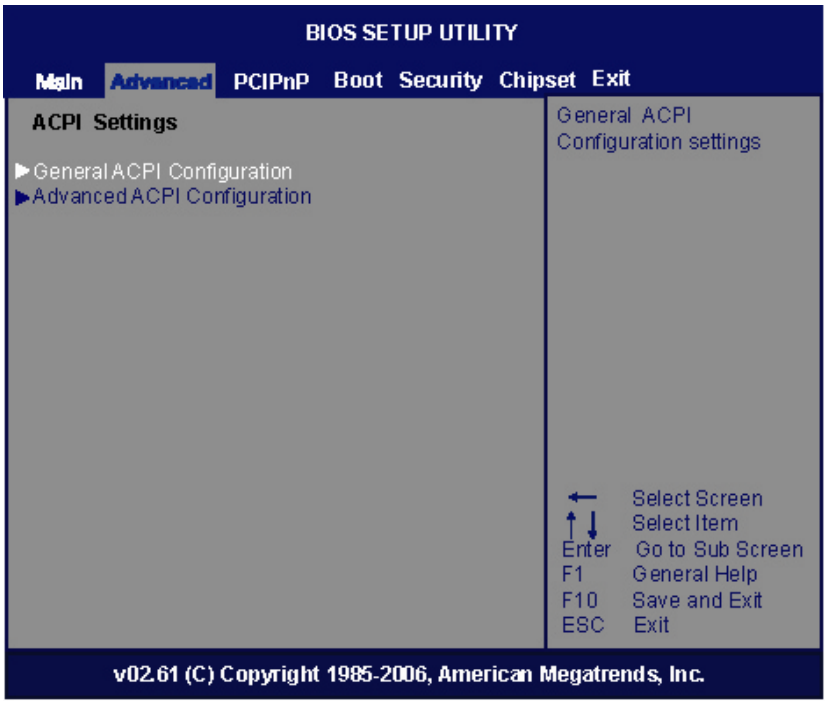
- **Hardware Health Configuration**
  This screen shows the Hardware Health Configuration, and a description of the selected item appears on the right side of the screen.



H/W Health Function

You can select this item *Enabled* for the Hardware Health Monitoring Device. The Hardware Health Event Monitoring displays the temperature of CPU and System, Fan Speed, Vcore, etc.

- **ACPI Configuration**
  You can use this screen to select options for the ACPI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



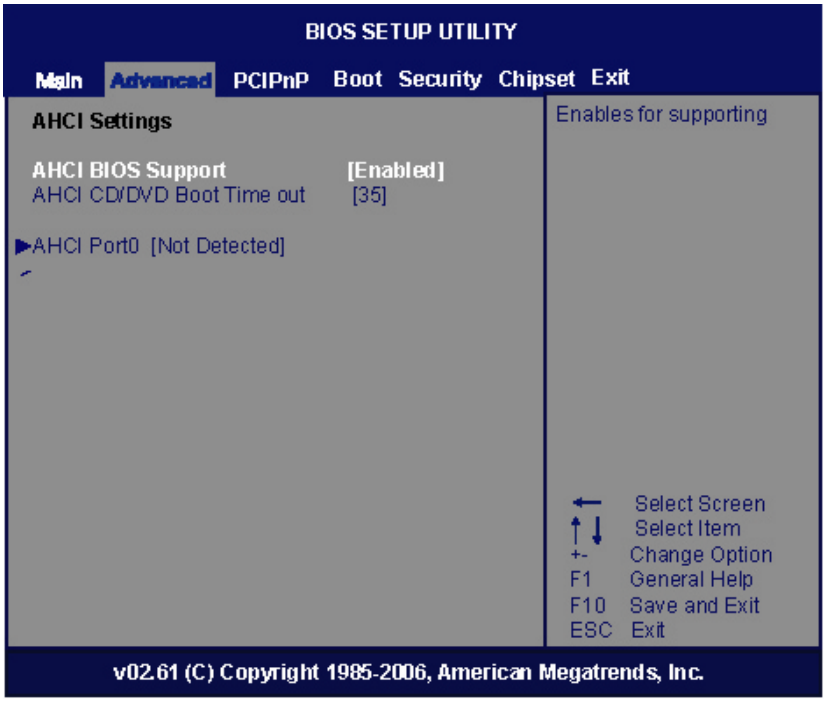
General ACPI Configuration

Scroll to this item and press <Enter> to view the General ACPI Configuration sub menu, which contains General ACPI (Advanced Configuration and Power Management Interface) options for your configuration.

Advanced ACPI Configuration

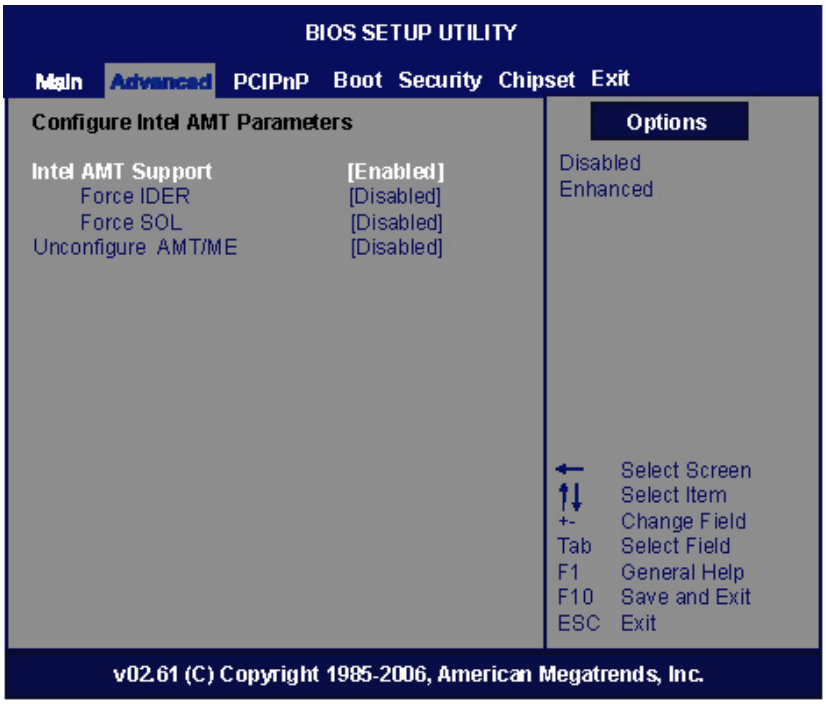
Scroll to this item and press <Enter> to view the Advanced ACPI Configuration sub menu, which contains Advanced ACPI (Advanced Configuration and Power Management Interface) options for your configuration.

- **AHCI Configuration**
  You can use this screen to select options for the AHCI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



AHCI BIOS Support
You can enable or disable this item to control the AHCI function of the SATA controller.

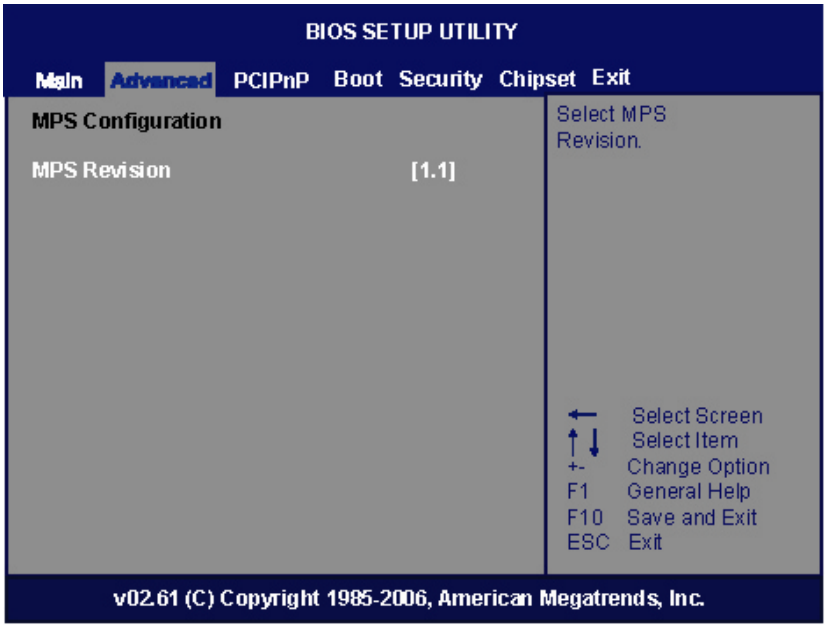
- **Intel iAMT Configuration**
  You can use this screen to select options for the Intel iAMT Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



Intel iAMT Support
You can enable this item to support iAMT (active management technology) function to follow up the procedure for the access to AMI program screen.

Unconfigure iAMT/ME
Use this item to unconfigure the iAMT/ME settings.

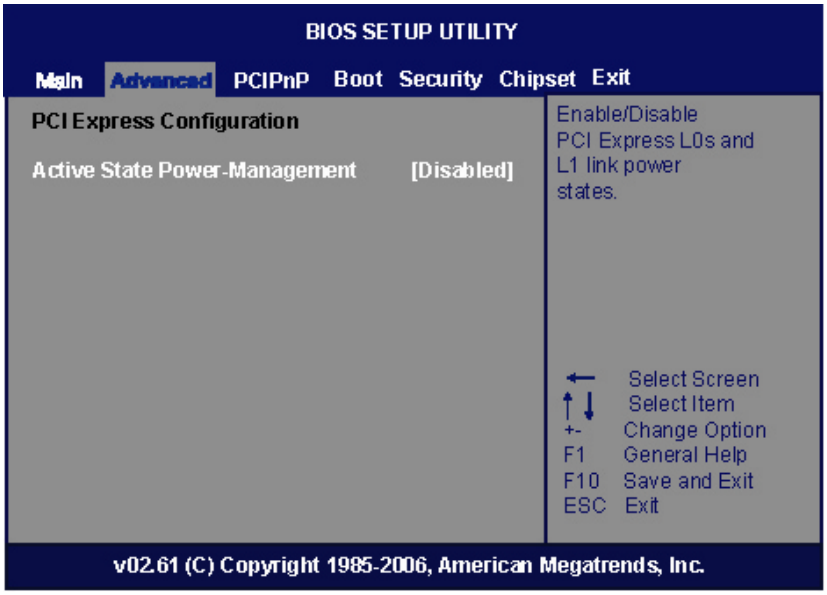
- **MPS Configuration**
  This screen shows the MPS (Multi Processor Specification) Configuration, and you can change its value. A description of the selected item appears on the right side of the screen.



MPS Revision

Use this item to select MPS (Multi Processor Specification) Revision 1.1 or 1.4. The default setting is *1.4*.

- **PCI Express Configuration**
  This screen shows the PCI Express Configuration, and you can change its value. A description of the selected item appears on the right side of the screen.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
PCI Express Configuration
Active State Power-Management [Disabled]
Enable/Disable PCI Express L0s and L1 link power states.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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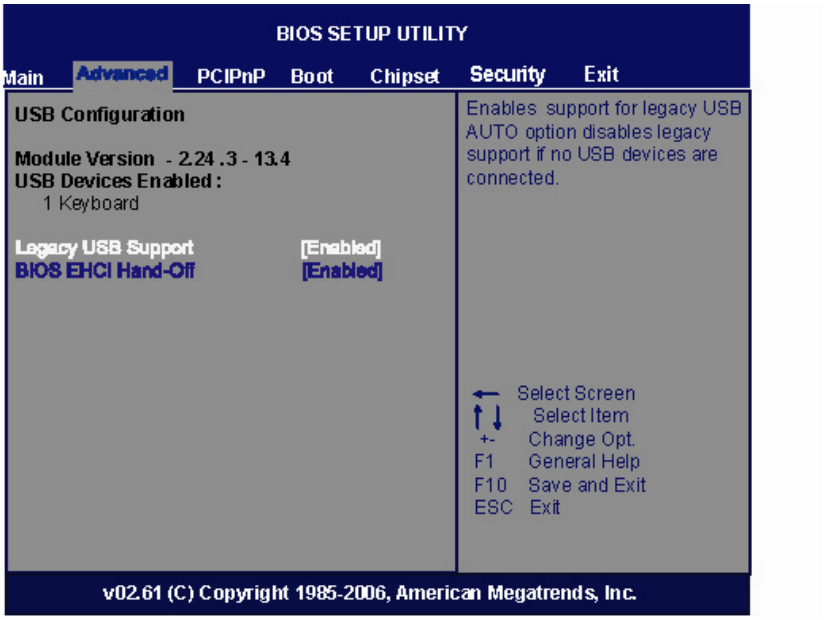
Active State Power-Management
Use this item to enable or disable the function of Active State Power-Management to provide you with lower power consumption. The default setting is *Disabled*.

- **USB Configuration**
  You can use this screen to select options for the USB Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



Legacy USB Support

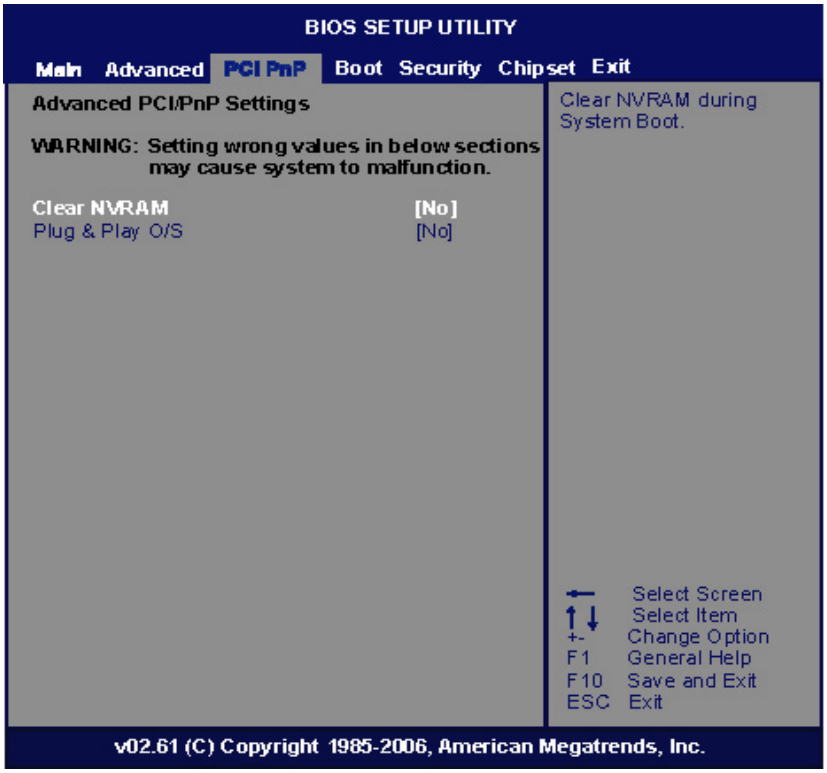
Use this item to enable or disable support for USB device on legacy operating system. The default setting is *Enabled*.

BIOS EHCI Hand-Off

Enabling this item provide the support for operating systems without an EHCI hand-off feature. The default setting is *Enabled*.

3.5 PCI PnP Menu

The PCI PnP menu allows users to change the advanced settings for PCI/PnP devices.


BIOS SETUP UTILITY
Main Advanced PCI PnP Boot Security Chipset Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
Clear NVRAM [No]
Plug & Play O/S [No]
Clear NVRAM during System Boot.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Clear NVRAM

Use this item to clear the data in the NVRAM (CMOS). Here are the options for your selection, *No* and *Yes*.

Plug & Play O/S

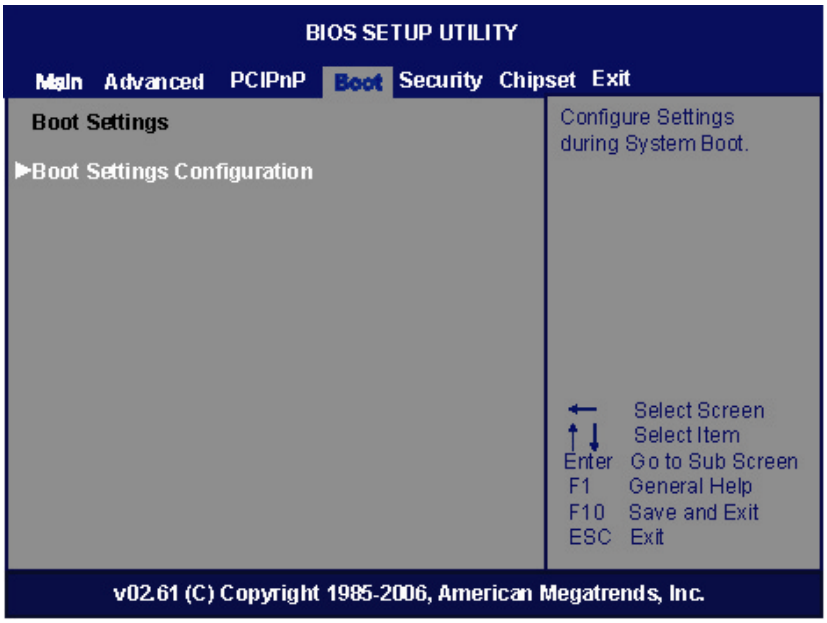
When the setting is No, Use this item to configure all the devices in the system. When the setting is Yes and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot. The default setting is *No*.

3.6 Boot Menu

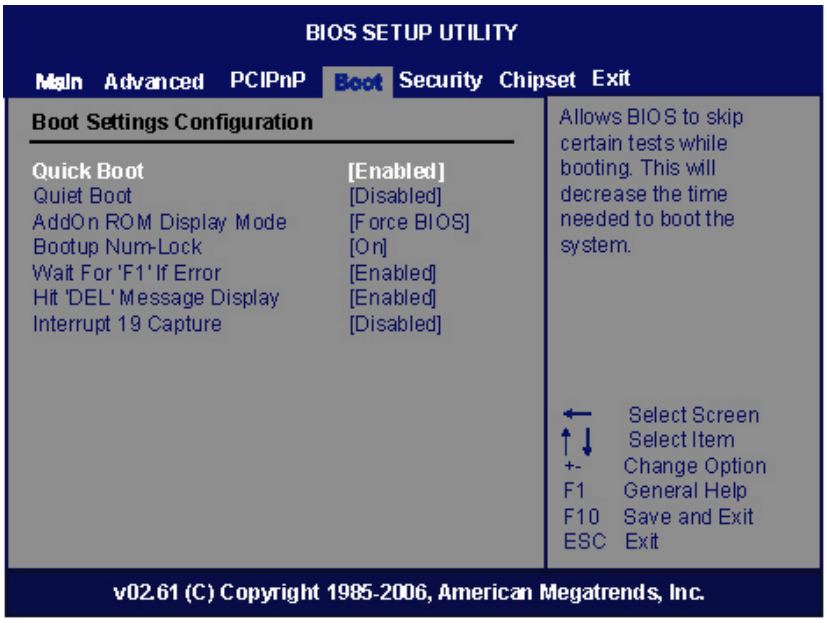
The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus:

- Boot Settings Configuration

For items marked with "►", please press <Enter> for more options.



- **Boot Settings Configuration**


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Disabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
Wait For 'F1' If Error [Enabled]
Hit 'DEL' Message Display [Enabled]
Interrupt 19 Capture [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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Quick Boot

Enabling this item lets the BIOS skip some power on self tests (POST). The default setting is *Enabled*.

Quiet Boot

Enabling this item lets the BIOS skip some power on self tests (POST). The default setting is *Enabled.*

AddOn ROM Display Mode

This item selects the display mode for option ROM. The default setting is *Force BIOS*.

Boot Num-Lock

Use this item to select the power-on state for the NumLock. The default setting is *On*.

Wait For 'F1' Of Error

If this item is enabled, the system waits for the F1 key to be pressed when error occurs. The default setting is *Enabled*.

Hit 'DEL' Message Display

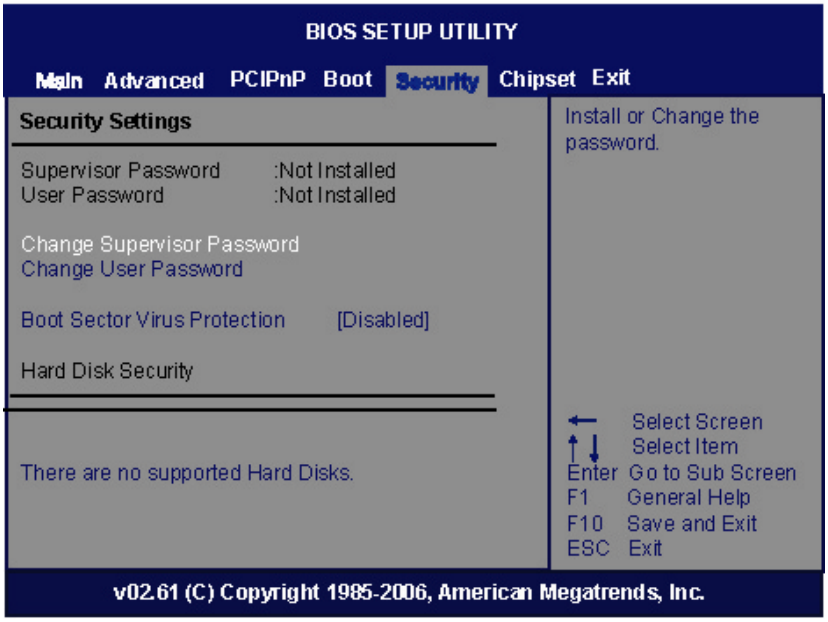
If this item is enabled, the system displays the message "Press DEL to run Setup" during POST. The default setting is *Enabled*.

Interrupt 19 Capture

If this item is enabled, this function makes the option ROMs to trap Interrupt 19. The default setting is *Disabled*.

3.7 Security Menu

The Security menu allows users to change the security settings for the system.



Supervisor Password

This item indicates whether a supervisor password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

User Password

This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

Change Supervisor Password

Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Change User Password

Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password.

Boot Sector Virus Protection

This option is near the bottom of the Security Setup screen. The default setting is *Disabled*

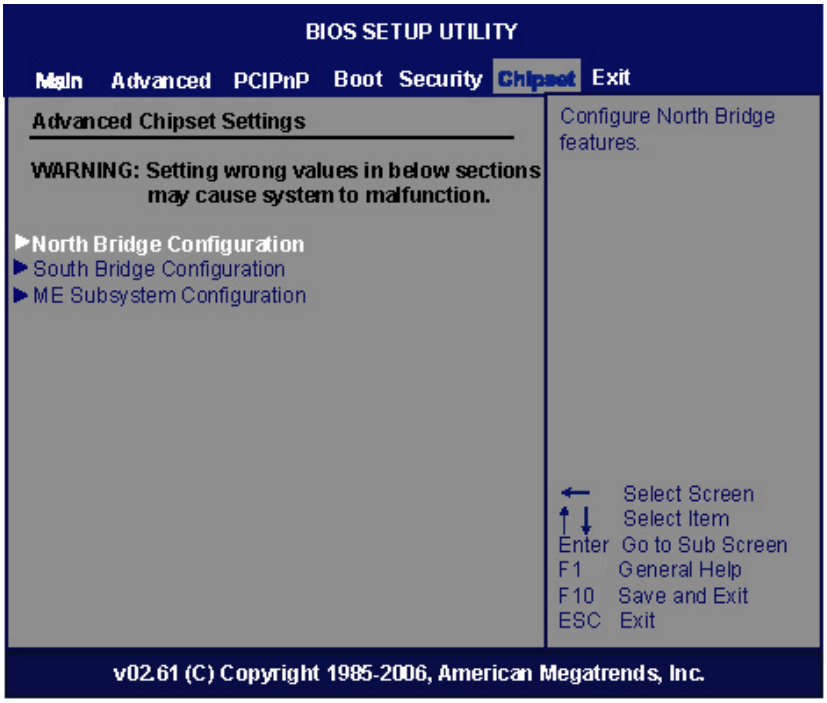
Disabled	Set this value to prevent the Boot Sector Virus Protection. This is the default setting.
Enabled	Select Enabled to enable boot sector protection. It displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. If enabled, the following appears when a write is attempted to the boot sector. You may have to type N several times to prevent the boot sector write. Boot Sector Write! Possible VIRUS: Continue (Y/N)? _ The following appears after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard disk drive Service: Format!!! Possible VIRUS: Continue (Y/N)?

3.8 Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

- North Bridge Configuration
- South Bridge Configuration
- ME Subsystem Configuration

For items marked with "►", please press <Enter> for more options.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
►North Bridge Configuration
► South Bridge Configuration
► ME Subsystem Configuration
Configure North Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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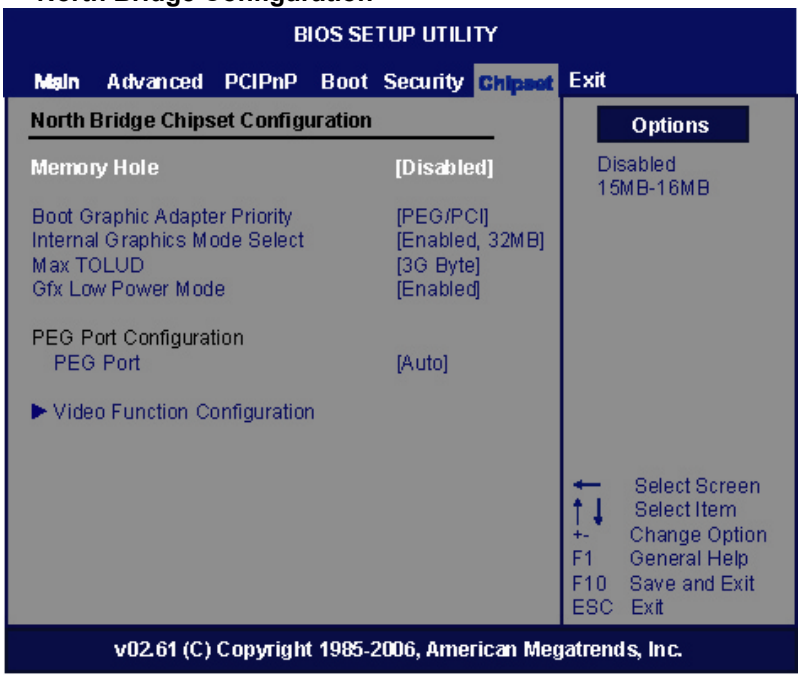
- **North Bridge Configuration**



Memory Hole

This item allows you to enable or disable the Memory Hole.

Boot Graphic Adapter Priority

This item allows you to select the graphics controller as the primary boot device.

Internal Graphics Mode Select

This item allows you to select the amount of system memory used by the internal graphics device.

Max TOLUD

This item allows you to select the size of TOLUD.

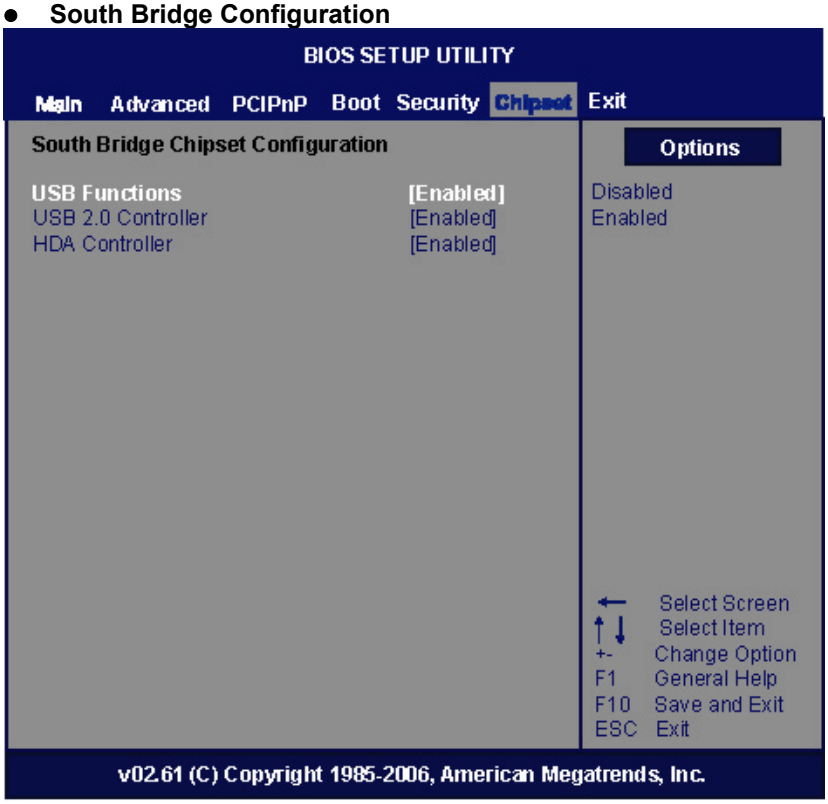
Gfx Port Power Mode

This item allows you to disable or enable Gfx Port Power Mode.

PEG Port

This item allows you to disable or enable PEG port control.

- **South Bridge Configuration**



USB Function

These items, respectively, allow you to enable or disable USB function.

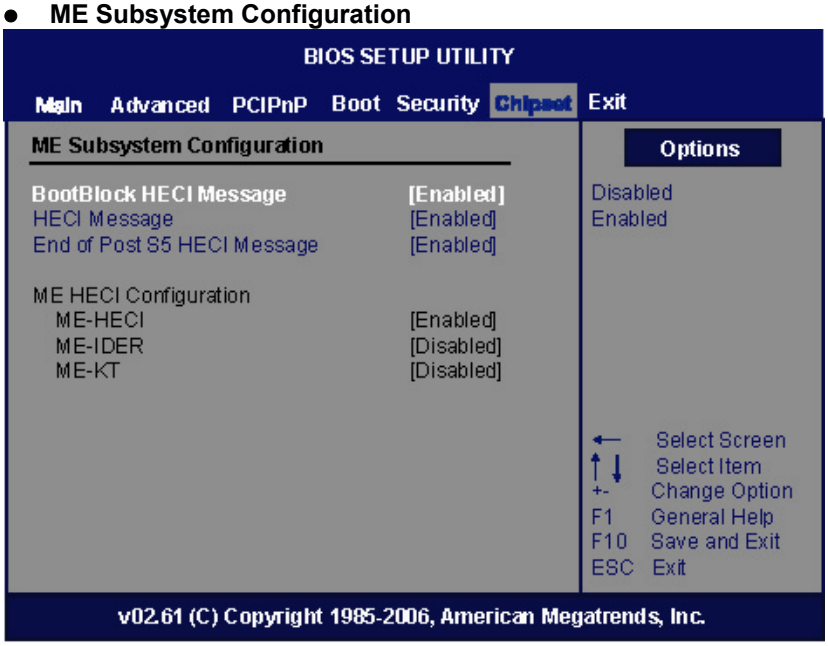
USB 2.0 Controller

These items, respectively, allow you to enable or disable USB 2.0 controller.

HDA Controller

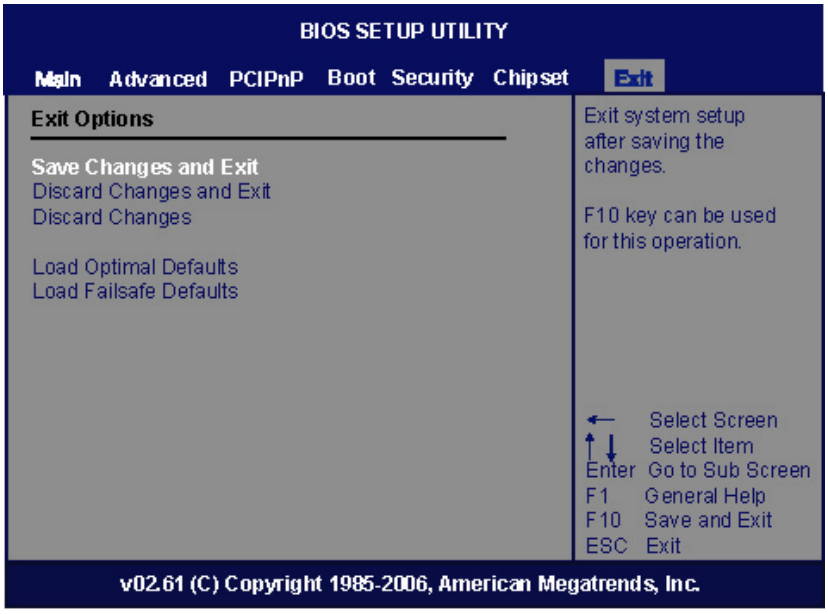
This item allows you to enable or disable the HD audio support.

- **ME Subsystem Configuration**



3.9 Exit Menu

The Exit menu allows users to load your system configuration with optimal or failsafe default values.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
Select Screen
Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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Exit Saving Changes

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Exit Saving Changes from the Exit menu and press <Enter>. Select Ok to save changes and exit.

Exit Discarding Changes

Select this option to quit Setup without making any permanent changes to the system configuration. Select Exit Discarding Changes from the Exit menu and press <Enter>. Select Ok to discard changes and exit.

Load Optimal Defaults

It automatically sets all Setup options to a complete set of default settings when you Select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

Load Fail-Safe Defaults

It automatically sets all Setup options to a complete set of default settings when you Select this option. The Fail-Safe settings are designed for maximum system stability, but not maximum performance. Select the Fail-Safe Setup options if your computer is experiencing system configuration problems.

Select Load Fail-Safe Defaults from the Exit menu and press <Enter>. Select Ok to load Fail-Safe defaults

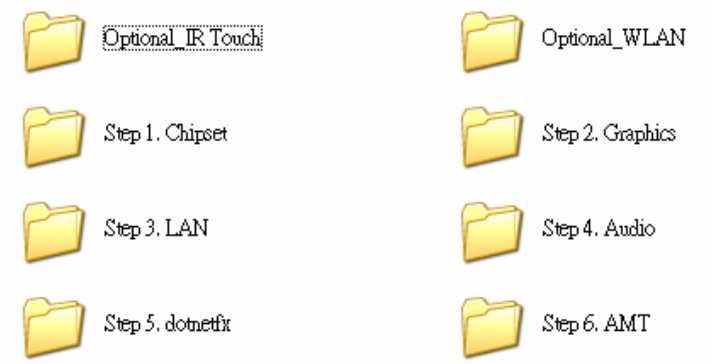
CHAPTER 4
DRIVERS INSTALLATION

4.1 System

DSH-146 supports Windows XP and Window 7. To facilitate the installation of system driver, please carefully read the instructions in this chapter before start installing.

1. Insert Intel Express Installer Driver CD and select the "\Driver\".

2. Select your operating system driver to install.

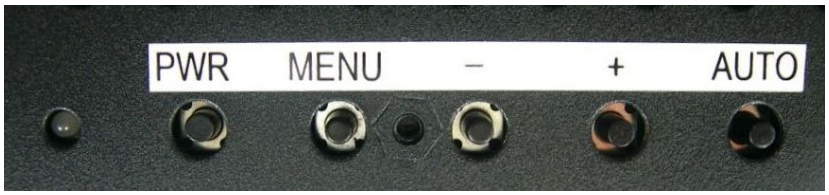


3. Select all files and follow the installing procedure.

CHAPTER 5
OSD Menu Setup

5.1 Hot key-1

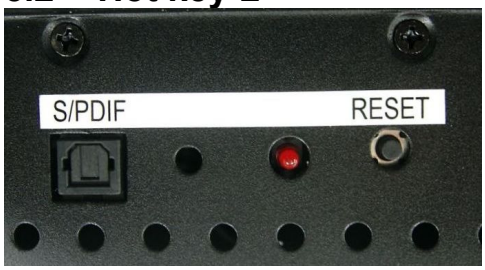
DSH-146 uses OSD to configure brightness, audio…etc. You could configure it via hot key.



Hot key Function Definition

OSD key	Function
Monitor State	Monitor Power State
POWER	POWER ON / OFF
MENU	OSD ON
－	ADJ－/ SEL－
＋	ADJ＋/SEL＋
AUTO	Auto adjust （OSD OFF）

5.2 Hot key-2



PC Control Item	Function
S/P DIF	S/P DIF Line out
HDD LED	HDD Read/Write State
RESET	Hardware Reset Button

5.3 Power Switch

PC Power SW	Function
I	System Power ON.
O	System Power OFF.

5.2 OSD function

OSD Functions are listed below:

OSD MENU	Description
General	General setting： ● Brightness ● Contrast
Audio	Volume: Adjust speakers volume Mute: Speaker power ON/OFF.
Color	Color Temperature-9300, 7500 and 6500, ● Higher color temperatures (5,000 or above) are called *cool colors* ● Lower color temperatures (2,700–3,000) are called *warm colors*
Tools	Tool： ● OSD Time Out: (5~60) seconds. ● Gamma Selection: 0.8, 1, 1.2 and 1.6 ● Sharpness of the screen's image. ● Recall: "Yes" allows you to recover the preset mode.
Sensors	● Photosensitive: Set environment illumination sensor mode. Three modes are as listed: Off, Hi-Lux, Middle-lux and low-lux) ● Lamp Life Status: Good, Margin and repair. (Ps: Set [Photosensitive] OFF to show the current status.) ● External Temperature: show environment temperature. (Level: ↑ 50 C°c ,1~49°c , ↓ 0 °c)

APPENDIX
Power Supply Specification

Power Supply (450W, AC110~240V Input)

1. Electrical Requirements

OUTPUT ELECTRICAL REQUIREMENTS

The subject power supply will meet all electrical specifications below, over the full operation temperature range and dynamic load regulation.

OUTPUT RATING

Output	min. loading	max. loading	Voltage range	o/p regulation	Remark
+5.0V	0A	2.0A	4.80V to 5.20V	<2%	※1
+12.0Va	0A	3.0A	11.4Vto 12.6V	<2%	※1
+12.0Vb	0A	8.0A	11.5V to 12.5V	<2%	※2
+24.0V	0A	13.0A	22.8V to 25.2V	<3%	

Note

※ 1: both +5V or +12Va are for Timing Control board of LCD panel, AD board, touch screen driver and other accessory devices.

※ 2: +12Vb is for system that is controlled by external switch.

※ 3: +24V is for inverter of panel.

2. Environmental Requirements

- **Operating temperature:** -5°C to 45°C
- **Storage temperature:** -40°C to +85°C
- **Humidity, non-condensing:** 20% ~ 90%RH, Non-Condensing

NOTE *DSH-146 Power supply should be protected the system when it is superheat. If the system inside temperature is over 70 degree, it will enable overheating solution to turn off system power.*

NOTE *it is regular phenomenon that seeing the mist under glass , because you boot up the system when it is leaved unused for a long term and it is difficult for humidity between environment and system.*
The system should keep standing perpendicularly to avoid the mist phenomenon.